

Theory of microwave induced zero-resistance state in two-dimensional electron gases

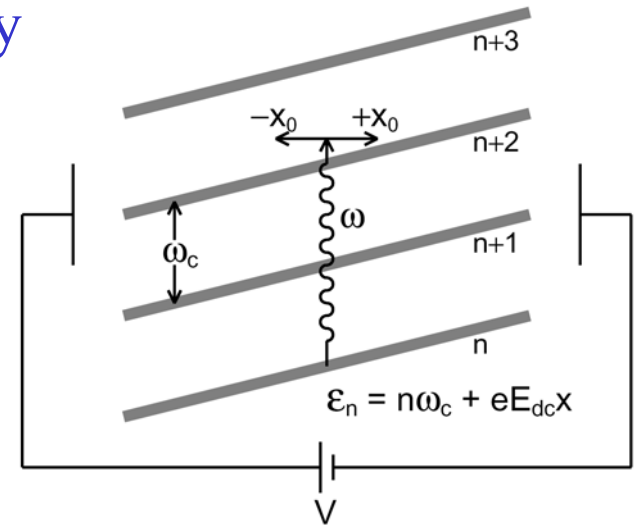
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We have developed a simple model which captures the physics observed in recent experiments on zero-resistance states induced by microwave radiation applied to two-dimensional electron gases in the presence of a magnetic field.

AC Durst et al., *Phys. Rev. Lett.*
91, 086803 (2003).



Search and Discovery

**Microwaves Induce Vanishing
Resistance in Two-Dimensional
Electron Systems**

At modest magnetic fields and microwave excitations, the resistance of a 2D semiconductor can oscillate all the way to zero.

Educational:
(SM Girvin)

Undergraduate Research:
Cliff Cheung

Graduate students:
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R. Huang
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Post-doctoral Fellows:
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A. Durst
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Outreach:
(SM Girvin)

High school student:
C. Leary
(optics simulations project)

AAPT Lecture to 50 high
school teachers on quantum
information

Lecture Demonstration for
Yale Physics Olympics (200
high school students)

DCMP ad hoc committee on
outreach